TANDD

Wireless
Thermo Recorder
Data Collector RTR-57C

User's Manual

Thank you for purchasing our product.
Carefully read this instruction manual
before using this unit.

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2003.7 16004264060

■ Notices about this User's Manual

In order to properly use this product, please carefully read this manual before using.T&D Corporation accepts no responsibility for any malfunction of and / or trouble with this product or with your computer that is caused by the improper handling of this product and will deem such trouble or malfunction as falling outside the conditions for free repair outlined in the attached warranty.

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- Specifications, design and other contents outlined in this manual are subject to change without notice.
- On screen messages in this manual may vary slightly from the actual messages.
- Please notify the shop where you purchased this product or T&D Corporation of any mistakes, errors or unclear explanations in this manual. T&D Corporation accepts no responsibility for any damage or loss of income caused by the use of our product.
- This product has been designed for private or industrial use only. It is not for use in situations where strict safety precautions are necessary such as in connection with medical equipment, whether directly or indirectly.
- We are not responsible for any malfunction or trouble caused by the use of our product or by any problem caused by the use of measurement results of our unit. Please be fully aware of this before using our product.
- Some of our products, which come under the category of strategic goods in foreign trade law, need the permission of the Japanese government to be exported outside of Japan.
- This User's Manual cannot be reissued, so please keep it in a safe place.
- Please read the warranty and provisions for free repair carefully.

Safety Precautions and Instructions

To ensure safety be sure to obey all of the following warnings.

The following items should be strictly obeyed for the safe usage of this unit, and for protecting yourself and other people from bodily harm and/or damage to property. To ensure the proper use of our product, please read the following carefully and fully understand the contents.

■ Explanation of Symbols

Explanation of Warning Symbols

⚠ **DANGER**	These entries are actions that absolutely under no circumstance should be taken. The taking of such an action may cause serious personal physical damage or death.
⚠ **CAUTION**	These entries are actions that if taken may lead to physical injury or damage to persons or things.

Explanation of Picture Symbols

△	Denotes an important warning or caution. Near the symbol will appear another symbol giving details. (EX: ⚠ stands for CAUTION AGAINST ELECTRIC SHOCK)
⃠	Denotes a forbidden action. Inside or near the symbol will appear another symbol giving details. (EX: stands for DO NOT TAKE APART)
●	Denotes an action that you must take. Near the symbol will appear another symbol giving details. (EX: stands for PULL POWER PLUG OUT FROM OUTLET)

⚠DANGERS

Be sure to follow the warnings and notices about use from your PC maker when installing and using this unit.

Do not take apart, repair or modify the main unit. Doing so may cause fire or electrocution.

If water or a foreign body enters in this unit, turn the power off and remove the batteries. Continued use may cause fire or electrocution.

Do not use this unit in wet or humid places, such as a bathroom.

Store RTR-57C main units, batteries and communication cables out of the reach of children. It is dangerous to touch or swallow batteries.

Connecting a communication cable that is connected to a PC or a data logger to the telephone cable may cause fire or damage.

If any smoke or strange smells are emitted from the unit, immediately turn the power OFF and remove the batteries. Continued use may cause fire or electrocution.

Do not drop the unit, or expose the unit to a strong impact. If that happens to the unit, immediately turn the power OFF and remove the batteries. Continued use may cause fire or electrocution.

⚠CAUTIONS

This unit is not water-resistant. If the unit gets dirty, wipe it with a clean cloth and a mild detergent.

Do not put your fingers or foreign matter into the communication port.

Battery life depends on the kind of the batteries, measurement environment, communication frequency, ambient temperature, and battery quality.

Do not use batteries other than specified. Doing so may cause fire or damage.

Do not use an AC adaptor other than specified. Doing so may lead to fire or damage.

Battery terminals may provide insufficient contact due to age or vibration. This may lead to data loss.

If the unit will not be used for period of time, for safety reasons please remove the battery. If left in the unit, it may leak and lead to malfunctioning.

Condensation may occur if the unit is moved from one environment to another where the difference in temperature is great. Use the unit in an environment where the ambient temperature is from -10 to 60℃ and the humidity is 90% RH (no condensation) or less.

⚠CAUTIONS

Do not expose the unit to harmful gases or chemicals. It may cause corrosion and/or other danger to the unit and to people handling the unit.

To prevent damage to the unit from static electricity, remove static electricity from your body by touching metal around you (door knob, window frame) before touching the unit.
Static electricity may cause not only damage to the unit, but may cause breaks in or a loss of data.

Do not use the unit in places such as listed below. It may cause electrocution, fire or have adverse effects on the unit or your PC.

- In places exposed to direct sun light.
  The inside temperature of the unit will rise and may cause fire, damage or deformation.
- In areas exposed to strong magnetic fields.
  It may cause damage.
- In places exposed to water leakage.
  It may cause damage or electrocution.
- In areas exposed to static electricity.
  It may cause damage.
- In areas exposed to vibration.
  It may cause an injury, damage, and/or insufficient contact.
- In places which are not flat.
  It may lead to the unit being dropped or falling and cause injury or damage.
- In places exposed to fire or heat.
  It may cause damage or a change in shape.
- In places exposed to excessive smoke, dirt and dust.
  It may cause damage.

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What is Data Collector RTR-57C ?

◆ Outline

Our revolutionary Wireless RTR-5 series is a system wherein the various kinds of data measured and recorded by our data logger units (RTR-51/RTR-52-Temperature data, RTR-53-Temperature and Humidity data, and RVR-52-Voltage, Pulse and Event data) can be transmitted to the RTR-57C Data Collector via short wave radio communication. The Data Collector can then be connected to your computer to enable easy downloading and total data management. The RTR-57C data collector can also be used to start recording and collect, check, and edit data on site for any of the units in the TR-5 Series (TR-51A/52) and/or the TR-7 Series (TR-71S/72S) making it unnecessary to collect the units and take them to your computer to carry out these functions.

◆ Basic Functions

● Wireless Data Communication Function

Our Thermo Recorder RTR-5 Series utilizes the RTR-57C to collect recorded temperature data from the RTR-51/RTR-52/ RTR-53 and RVR-52 units via our exclusive short-wave wireless technology. The RTR-57C also allows you to wirelessly control recording settings and start recording, as well as other functions of the data loggers. Communication is possible to a distance of up to 100 meters if unobstructed and direct.

Note: If collecting data via wireless communication, it is necessary to first set up the RTR-5 Series Units as Remote Units in your computer.

● Register up to 3,840 RTR-5 Series Units on 1 RTR-57C

RTR-57C is designed to manage the RTR-5 Series Units in groups. 1 RTR-57C Unit can be set up to manage up to 60 groups, with each group containing up to 64 RTR-5 Series Units. If being set up via computer each RTR-57C can be set to handle 15 groups with each group containing 250 RTR-5 Series Units.

● Monitoring Function

With RTR-57C, you can wirelessly monitor current temperature readings of one group of RTR-5 Series Units, with the readings being sequentially displayed on the unit.

Note: If monitoring is carried out on a regular basis the battery life of the RTR-5 Series Units will be shortened. For example, if the monitoring interval is set at 1 minute the battery life will be about 4 months.

● Easy Data Collection from a Variety of Unit Types

Data downloading can be carried out with any RTR-5 Series Units via wireless communication or by simply placing it face down on the communication pad area. Data from other types of units can be downloaded via the provided communication cable.

● Data Capacity: 260,000 Readings

The RTR-57C has a large enough capacity to collect data from 16 RTR-51 units at full capacity. If not at full capacity, the RTR-57C can collect and manage data of up to 250 data downloading sessions.

● Graph Display

The RTR-57C gives you a high quality graph display of collected data whether it be temperature, humidity, voltage or pulse. Using the handy operation dial or the buttons on the front of the main unit you can easily scroll left and right across the graph display; giving you the data you want in an easy to check format.

● Event List Display

The event data recorded on the RVR-52 can be downloaded and instantly displayed in an easy to read list. Using the handy operation dial or the buttons on the front of the main unit to scroll up and down the list you can easily check the event data.

● Handy Operation Dial

By simply moving the dial up and down you can scan the menu and make a selection by simply pressing in on the dial.

● Monitor Temperature while Downloading

By making upper and lower limit settings on the RTR-57C you can monitor the recorded data as it is collected for irregularities and the results will be displayed. If any RTR-5 Series Unit has already been set with its own upper and /or lower limit, those values will take precedence over the values set in the RTR-57C.

● Manage Recording Settings without a Computer

Besides controlling the collection of data, the RTR-57C can manage various recording settings such as: Recording Mode, Recording Interval, Programmed Recording Settings and Immediate Record. This enables the user to easily control various recording settings for a variety of models on-site without the need for a computer.

● Battery Life Warning Display

When the battery power goes low, a battery life warning will be displayed. If the battery is not changed the unit will automatically go into sleep mode.

● Trustworthy Backup Function

If, after the battery warning display appears, the battery power goes even lower the unit will automatically go into sleep mode. Although, in sleep mode, the unit cannot be operated and power cannot be turned on, all data will be safely stored without loss.

Note: If after going in to sleep mode, the battery is not changed for about 1 month (for Ni-Cd (Nickel-Cadmium) batteries 1 day), or if the battery is left out of the main unit for more than about 2 minutes, all data will be lost.

● Over 100 Hours on 2 Alkaline Batteries

The RTR-57C takes advantage of our exclusive circuitry design to bring over 100 operating hours worth of power on only 2 AAA alkaline batteries. Energy efficiency is further enhanced with our Auto Power Off Function.

Note: Battery Life varies according to type of battery, measuring environment, transmission frequency, and ambient temperature. This estimate of battery life was based on normal use under normal conditions using a new battery. This is in no way or manner a guarantee of battery life.

● Auto-Off Function

To save battery energy the main unit will automatically be turned off when not in use for 3 minutes.

● Backlit Display for Viewing in Dark Places

The RTR-57C comes equipped with a backlit display for easy viewing even in hard to see places.
The light can be switched ON/OFF in the main menu. If set to be ON, it will light up when operation begins and automatically turn off when operation stops for a few seconds, saving battery energy.

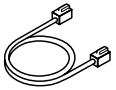
Note: If an outside power source is being used (AC Adaptor AD-0604), the back light function will normally be ON.

Contents of Package

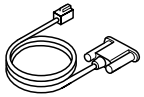
The following items are included in the package.

Data Collector RTR-57C ×1

Software
(T&D Recorder for Windows)
CD-ROM ×1



Communication Cable
(TR-3C10) ×1



Communication Cable
(RS-232C: D-sub 9 pin) ×1

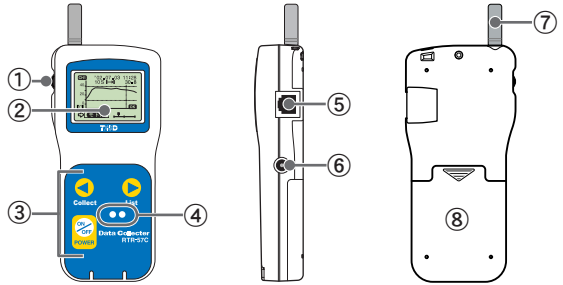
AAA Alkaline Batteries ×2

Main Unit User's Manual
and Warranty ×1

Software User's Manual
and Warranty ×1

Part Names and Functions

◆ Part Names



① Operation Dial
② LCD Display
③ Operation Buttons
④ Optical Communication Port
⑤ Communication cable connection jack
⑥ AC adaptor connection jack
⑦ Antenna
⑧ Battery Compartment

◆ Explanation of the Button Functions

Collect

- When downloading via wireless communication the [Select Group] display will appear.
- Allows you to swift-scroll across data when viewing a graph or an event list.
- Allows you to swiftly make changes to the upper and lower limit value settings.

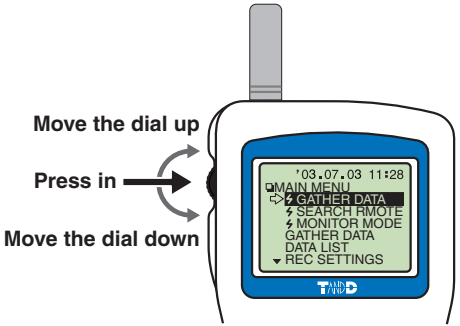
List

- The downloaded data list will be displayed.
- Allows you to swift-scroll across data when viewing a graph or an event list.
- Allows you to swiftly make changes to the upper and lower limit value settings.

POWER

- Switch Power ON/OFF.

◆ How to Use the Operation Dial



〔Moving the dial up and down〕

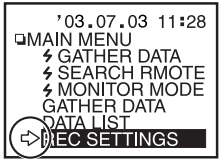
- By moving the dial up or down the arrow will move to allow you to choose the desired item. The selected part will be displayed in an easy-to-see inversed shade.
- When setting a numerical value, by moving the dial up the value will become larger and by moving the dial down the value will become smaller.

〔Pressing in on the dial〕

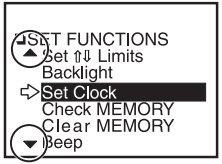
- By pressing in on the dial, you can make a desired menu selection or complete and activate a setting.
- Keeping the dial pressed in (1.5 seconds) will activate different functions depending on the display being viewed.
  - If you keep it pressed in while viewing the graph display, you can change the display channel.
  - If you keep it pressed in while viewing a menu, a setting display, or the event list display, you will be returned back to the main menu display.

◆ LCD Display

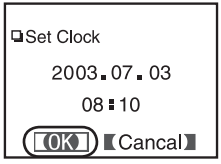
● Items marked with(ϟ)indicate menus for Wireless Communication.



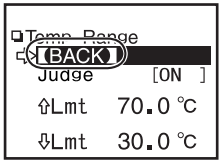
● The item marked with an arrow(⇨)denotes it has been selected. If you move the operation dial up and down, the arrow will move accordingly and by pressing in the dial the item selected will be activated.



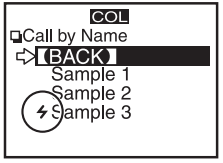
●A▲ indicates that there are more menu items above (▲) or below the (▼) to view.



● After making a setting, adjust the dial to select [OK] and press to complete the setting procedure.

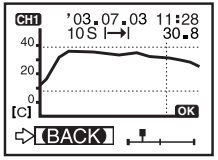


● If there is no [OK] in the setting display, but a [BACK] is displayed, adjust the arrow to [BACK] and press it to complete the setting and take you back to the menu display.

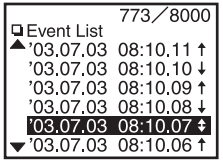


● When carrying out a Remote Unit search, a ϟ mark will appear next to Group Names in which Remote Units that can carry out wireless communication are registered, as well as, next to any Remote Unit name that can carry out wireless communication.

〔Recorded Data Displays〕



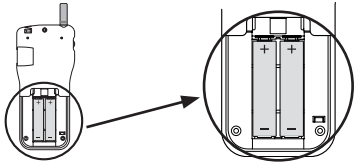
● Graph Display
Temperature, Humidity, Voltage and Pulse Data that has been downloaded to an RTR-57C unit can be displayed in Graph form. See p.37 for details about the display.



● Event List Display
Event Data that has been recorded by RVR-52 and downloaded to RTR-57C can be viewed in a List Display. See p.39 for details about the display.

Installing the Batteries

◆ Install 2 AAA alkaline batteries.



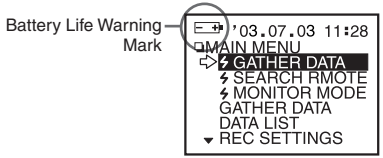
- AAA Ni-Cd and AAA Ni-MH(1.2V) batteries sold on the market can also be used.

NOTE:

- Install 2 of the same kind of batteries.
- Install the batteries in the correct direction to align + and −.
- Battery charging via the main unit is impossible.
- If you use an outside power source, batteries are not necessary.
- The RTR-57C unit has no battery recharging ability.

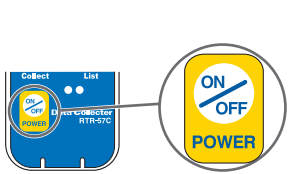
【Battery Life】

When battery life goes low, a battery life warning mark (🔋) will be displayed to inform you it is time to replace the battery.
When battery life goes lower, in order to save data, the main unit automatically goes into sleep mode and cannot be turned on or operated as usual. If all battery power disappears, all data will be lost so change the battery as soon as possible. Also be aware that, if the battery is left out of the main unit for more than 2 minutes, all data will be lost.

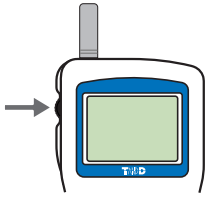


Switching the Power on

◆ Switch the power ON by pressing the POWER button or the Operation Dial.



《Press the POWER button》



《Press the Operation Dial》

- To switch the power OFF, press the [POWER] button. You cannot switch the power OFF with the Operation Dial.
- During communication, even by pressing the [POWER] button, it is impossible to switch the power OFF.

【Auto Power Off Function】

If the main unit is not in use for 3 minutes, the power will be automatically switched off in order to save battery power. If you wish to continue to use, switch the power on again.

NOTE:

If using the monitoring function, the Auto Power Off function will not go into effect.

Setting the Date and Time

CAUTION !

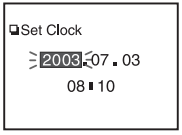
- After purchasing this product, please be sure to use the attached software to set the clock and date.
- The difference between your local time and GMT will automatically be calculated and written, after which the correct time will be displayed.
- If the date and time of the RTR-57C main unit are not accurate, the starting time of a programmed start and the recorded time of downloaded data will be different from the actual one, so please set the date and time accurately.
- When changing the battery, the time of the main unit may become incorrect; please check the time after every change.

1. In the main menu open [SET FUNCTIONS] and then [Set Clock].

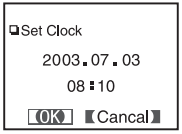
2. Setting the desired values.

① By moving the operation dial up and down, the selection item of the display changes in the order of year, month, day, hour, and minute. By pressing the dial, the value for that item will flash.

② Set to the desired value by moving the operation dial up and down and press the dial to set that value. Move to the next item and follow the same procedure.



3. When settings are completed, adjust to [OK] and press the dial to complete the setting procedure.



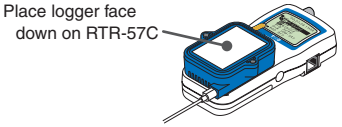
Communicating with the Data Logger

There are two ways to communicate between the RTR-57C and the Data Logger.

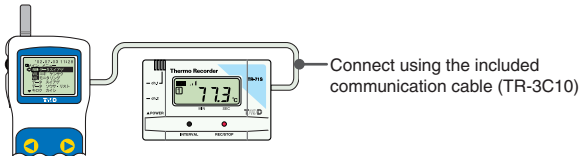
【Via Cable / Optical Communication】

Via Communication Cable connection for TR-7 Series and Optical Communication for RTR-51/52/53, RVR-52 and TR-5 Series.

〔For RTR-51/52/53, RVR-52 and TR-51A/52〕



〔For TR-71S/72S〕

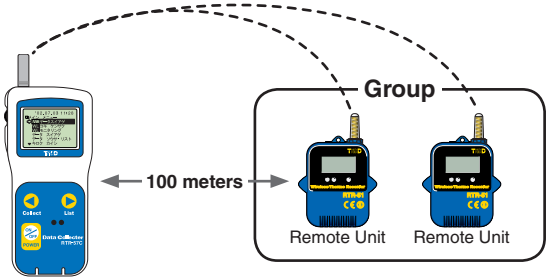


◆ The following operations can be done using communication via cable or optical communication.

- **Download Recorded Data**
  You can download any data that has been recorded in a data logger.
- **Set the Recording Conditions**
  You can control and change all recording settings such as Recording Mode, Recording Interval, and Recording Start Date and Time (Programmed Start).
- **Read Logger Settings**
  The RTR-57C can read and display all settings for the data logger that is connected to it.

【Wireless Communication】

Communication can occur via special short radio waves with RTR-51/52/53 and RVR-52.



● Transmission distance is 100 meters if direct and unobstructed.

NOTE:
Wireless communication can only occur with those RTR-51/52/53 and RVR-52 logger units that have been registered as Remote Units via the accompanying software 『T&D Recorder for Windows®』.

◆ The following operations can be done using wireless communication.

● **Download Recorded Data**
You can download data to the RTR-57C that has been recorded in data loggers (RTR-51/52/53 and RVR-52) from a distance, without having to collect the units.

● **Check Remote Unit Conditions**
You can check the battery life, current measurements and recording settings for any unit registered Remote Unit.

● **Change Recording Conditions**
You can control and change all recording settings such as Recording Mode, Recording Interval, and Recording Start Date and Time (Programmed Start).

● **Read Logger Settings**
The RTR-57C can read and display all settings for any selected data logger that has been registered.

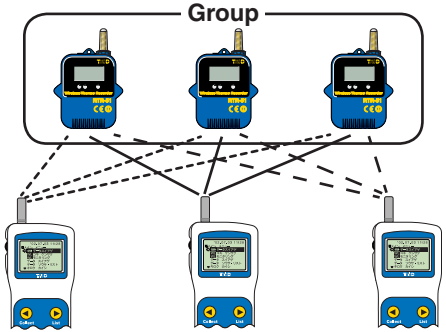
● **Search for Remote Unit (s)**
A ϟ mark appears next to the name of any Remote Unit with which wireless communication is possible.

● **Monitor Current Readings**
You can monitor the current measurements of a Remote Unit at a set interval or in groups with the measurements displayed consecutively.

◆ One Remote Unit can be set up to communicate with any number of RTR-57C Units.

By registering the same Remote Unit info into a number of RTR-57C Units it is possible to check and control settings, as well as download to any RTR-57C Unit that carries that Remote Unit's registration information.

NOTE:
If you try to carry out communication between one Remote Unit and several RTR-57C Units at the same time, an error message will appear.



You can transfer the registration contents from one RTR-57C to another via the attached software. For details see the [Help Menu] in 『T&D Recorder for Windows』 or the User's Manual that accompanies it.

Communicating with the Computer

To download collected data to your computer, connect the RTR-57C Unit to your computer with the communication cable provided.

※ Downloading, editing and managing collected data can be done with the provided software. For details about how to use the software, refer to the User's Manual that comes with『T&D Recorder for Windows®』or the [Help Menu] in『T&D Recorder for Windows』.

NOTE:
Wireless communication cannot be done with the computer.

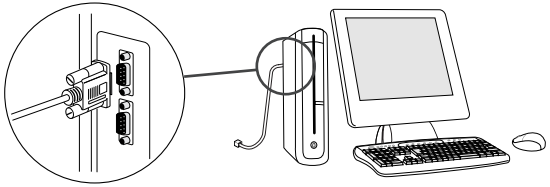
【Communication between RTR-57C and your Computer】

1. Connect the communication cable to your computer.

- Connect the provided communication cable (RS-232C) to a serial port of your computer.

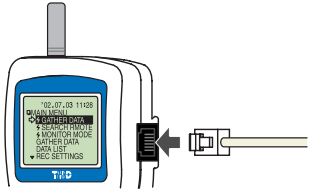
Examples of Serial Port Symbols

The cable connection is a D-sub 9pin male. Please connect to the place that has such a symbol.

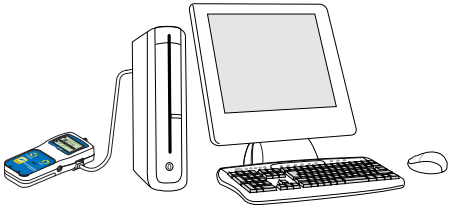


- Be sure the connection is correct. If wrong, communication will not be possible.
- To prevent faulty contact, make sure to fully insert the communication cable.

2. Connect the communication cable to the RTR-57C.



- To prevent faulty contact, make sure to fully insert the communication cable.

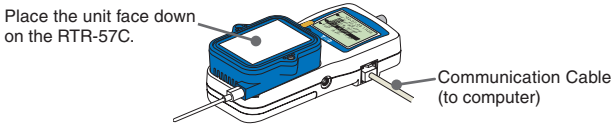


【Communication between RTR-51/52/53
RVR-52 and your Computer】

1.Connect the communication cable.

① Connect the RTR-57C Unit to your computer with the provided communication cable (RS-232C).

② Place the data logger on the RTR-57C.



NOTE:
If light enters during communication, an error will occur. Please make sure to place the unit within the ridges for an exact fit.

2.In order to carry out wireless communication, register Groups and Remote Units.

※ For details about how to register, see the [Help Menu] in the provided software 『T&D Recorder for Windows®』 or the accompanying User's Manual.

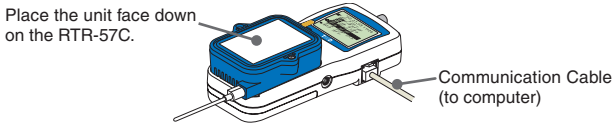
Wireless Communication: Remote Unit Registration

NOTE:

- Wireless communication can only be carried out with RTR-51/52/53 and RVR-52 units that have been registered as Remote Units via the provided software 『T&D Recorder for Windows』.
- Please extend the antenna when using wireless communication.

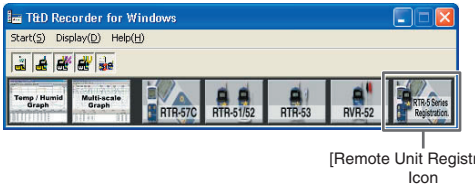
◆ Register the data logger unit to be used as a Remote Unit.

1.Connect the cable so that communication can occur between the data logger and your computer. (See p.15-17)



2.Open 『T&D Recorder for Windows®』.

3.In the Main Window, click [Remote Unit Registration] and carry out the registration.



If you wish to make Recording Start settings via computer, see the [Help Menu] in the display for the type of logger you wish to make settings for. Details can also be found in the 『T&D Recorder for Windows』 User's Manual explanation of the [Recording Start] display.

Wireless Communication: Recording Start

The following settings and changes can be made from the main unit:

- Recording Start Date and Time (Programmed Start)
- Recording Mode
- Recording Interval

※ To change the unit of temperature (˚C or ˚F) in the RTR-51/52/53 units and the measurement mode in the RVR-52 units, please use your computer and the software 『T&D Recorder for Windows®』.

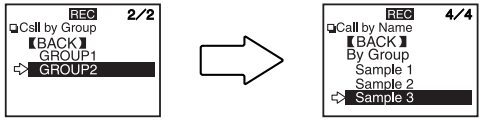
NOTE:

- If you make recording condition changes while recording, all previously recorded data will be lost. Please make sure to download all recorded data before making changes.
- Changes in recording conditions will result in a lifting of the upper and lower limits that had been set for each unit. If you wish for those settings to remain in effect, please make sure to use the [Read Settings] function before making any changes. (See p.24 for details.)

【Immediate Start】

1. In the Main Menu, click [REC SETTINGS] and then [⚡Wireless].

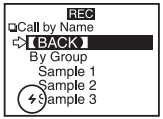
2. Select the Remote Unit for which you wish to make settings.



① Select a Group in which Remote Units are registered.

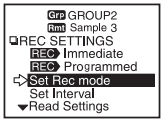
② Select a Remote Unit or a Group.

- Before selecting a Remote Unit you can run a search to find all Remote Units with which communication is possible. Those units with which communication is possible will appear with a ⚡ mark next to them. (See p.45 for details)



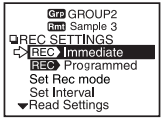
3. Make Recording Condition Settings.

- If you wish to make no changes and want to restart recording under the same conditions, please read the current settings first and then restart recording. (See p.24 for details)



- **Recording Modes:**
  One Time: Recording will stop when the data capacity becomes full.
  Endless: Recording will continue with oldest data continuously overwritten.
- **Recording Interval:**
  Choose from 15 intervals: 1,2,5,10,15,20,30 seconds and 1,2,5,10,15,20, 30 and 60 minutes.

4. After having completed the settings, adjust the arrow (>) to [REC Immediate] and press dial to transmit the recording conditions to the Remote Unit.

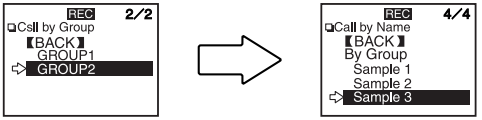


5. Once transmission has been completed, a message will appear on the display telling you communication was completed successfully. By pressing the operation dial you can go back to the Recording Settings Menu Display. The Remote Unit(s) will begin recording.

【Programmed Start】

1. In the Main Menu, click [REC SETTINGS] and then [ϟWireless].

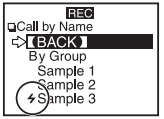
2. Select the Remote Unit for which you wish to make settings.



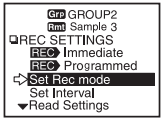
① Select a Group in which Remote Units are registered.

② Select a Remote Unit or a Group.

● Before selecting a Remote Unit you can run a search to find all Remote Units with which communication is possible. Those units with which communication is possible will appear with a ϟ mark next to them. (See p.45 for details)



3. Make Recording Condition Settings.



Recording Modes:

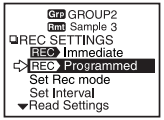
One Time: Recording will stop when the data capacity becomes full.

Endless: Recording will continue with oldest data continuously overwritten.

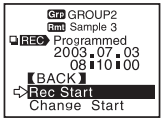
Recording Interval:

Choose from 15 intervals: 1,2,5,10,15,20,30 seconds and 1,2,5,10,15,20,30 and 60 minutes.

4. After having completed the settings, adjust the arrow (>) to [REC Programmed] and press dial.



5. After having set the desired recording start date and time, adjust the arrow (>) to [REC SETTINGS] and press the dial to transmit the info.

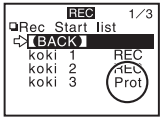


6. Once transmission has been completed, a message will appear on the display telling you communication was completed successfully. By pressing the operation dial you can go back to the Recording Settings Menu Display.
The Remote Unit(s) will be put on Record Standby.

◆ About Forbidding Recording Start by Wireless

- If a selected Remote Unit has been set to only start recording via computer and has been to set to be protected against changes in the recording start via wireless communication, the following message will appear.

- When starting recording by Group, a list will appear showing the Remote Units with which communication occurred.
  [PROT] will appear next to those Remote Units which have been set to only start recording via computer and have been set to be protected against changes in recording conditions via wireless communication.



【How to Lift the Protection】

For details about how to lift the protection see the Help Menu in the provided software 『T&D Recorder for Windows®』 or see its User's Manual.

◆ About Reading the Recording Settings

Select a Remote Unit and press on [Read Settings] in the REC SETTINGS Menu. After reading, the recording settings information for the selected Remote Unit will be displayed.

NOTE: If you select a Group, this reading of settings cannot be done.

◆ About the Default Settings

At any time, you can return the RTR-57C to its default settings of Recording Mode: Endless and Recording Interval: 10 minutes.

Wireless Communication: Downloading Recorded Data

About 2000 data readings can be downloaded per minute.

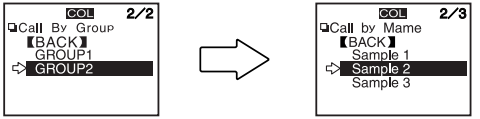
※ About 1000 event data readings can be downloaded per minute.

NOTE:

- Wireless communication can only be done with RTR-51/52/53 and RVR-52 units that have been registered as Remote Units via the software 『T&D Recorder for Windows』.
- Please extend the antenna before carrying out wireless communication.

1. In the Main Menu, open [⚡GATHER DATA].

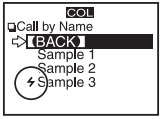
2. Select a Remote Unit.



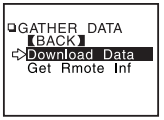
① Select a Group in which Remote Units are registered.

② Select the Remote Unit you wish to download the data from.

- Before selecting a Remote Unit you can run a search to find all Remote Units with which communication is possible. Those units with which communication is possible will appear with a ⚡ mark next to them. (See p.45 for details)



3. Click [Download Data].



4. Set the period of data you wish to download and click [START GATHER] to start downloading.

【Period of Data】

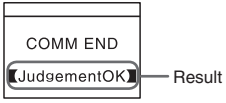
You can set the period (how many hours or days before now) from which you wish to download data.

- You can select from 1 ～ 47 hours (in 1 hour units) / 2 ～ 300 days (Less than 100 days in units of 1 day, More than 100 days in units of 5 days)/ or ALL DATA.
- If you specify the period of data that is earlier than the period of the data saved in the remote unit, all saved data will be downloaded.

5. When the downloading is completed, a message will be displayed.

By pressing the operation dial, the display will change to that of a graph.

- If you have set the judgment [ON] in [Set ↑ ↓ Limits] before downloading, the result will be displayed when the downloading is completed.



◆ If the amount of main unit memory is low, the downloading of recorded data may be impossible.

When you check the amount of the memory to confirm whether the data you wish to download can be saved in the RTR-57C, and the data cannot be saved, the message [Memory Full] will be displayed and the downloading will be canceled.

Carry out any new download only after having downloaded and saved the recorded data you wish to save into your computer and having deleted the data from the RTR-57C main unit to make space.

See Page 51-52 for details about deleting data.

- The memory capacity is about 16 units of RTR-51 at full data (16,000 readings) capacity or about 256,000 readings.The maximum number of times you can download recorded data before clearing the memory is 250; this holds true even if there remains empty memory.
- See Page 54 for details about checking the memory.

Cable Communication: Recording Start

The following settings or changes can be made via the main unit.

- Recording Start Time Setting (Programmed Start)
- Recording Mode
- Recording Interval

※ Please make temperature unit changes for the RTR-51/52/53 main units and Measurement Mode changes for the RVR-52 units via the supplied software 『T&D Recorder for Windows®』

NOTE:

- If you set the conditions during recording, all previously recorded data will be lost. Make sure to make all Recording Start settings after having download the recorded data.
- If you make changes to the recording condition via the RTR-57C unit, channel names may change. When you do not wish to change the names, make sure to Read Settings before making changes.

  ※ RTR-51/52/53 and RVR-52 are not channel names, but are group or remote unit names, so these names will not change.

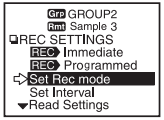
【What does [Read Settings] mean?】

The recording conditions of a specified Remote Unit can be read into an RTR-57C unit.
If you wish to restart recording without making any changes to the recording conditions, specify the Remote Unit and click [Read Settings]. The recording conditions of the specified Remote Unit will be displayed.

【Immediate Start】

1. In the Main Menu. open [REC SETTINGS] − [Direct].

2. Set the recording conditions.



Recording Modes:

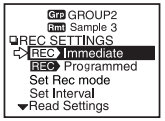
One Time: Recording will stop when the data capacity becomes full.
Endless:Recording will continue with oldest data continuously overwritten.

Recording Interval:

Choose from 15 intervals: 1,2,5,10,15,20,30 seconds and 1,2,5,10,15,20,30 and 60 minutes.

※ Some recording intervals cannot be set on some types of the devices.

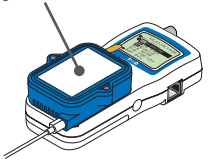
3. Move the arrow to [Immediate] after setting the conditions.



4. Connect the data logger to the RTR-57C and press the operation dial to have the settings transmitted.

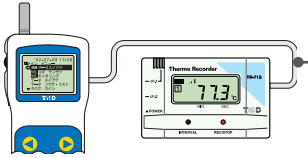
〔For RTR-51/52/53, RVR-52 and TR-51A/52〕

Place logger face down on RTR-57C



- If light enters during communication, an error will occur. Please make sure to place the unit within the ridges for an exact fit.

〔For TR-71S/72S〕



Connect using the included communication cable (TR-3C10)

5. When communication has been completed the message [COMM END] will be displayed and by pressing the operation dial, the display will return to the menu. The Remote Unit will start recording.

◆ About the Default Settings

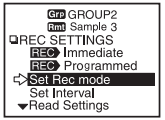
At anytime, you can return the RTR-57C to its default settings.

Recording Mode: Endless
Recording Interval: 10 minutes
Channel Names: 1 channel…ch.1, 2 channel…ch.2

【Programmed Start】

1. In the Main Menu, open [REC SETTINGS]-[Direct].

2. Set the recording conditions.



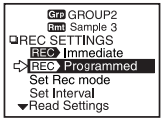
Recording Modes:

One Time: Recording will stop when the data capacity becomes full.
Endless: Recording will continue with oldest data continuously overwritten.

Recording Interval:

Choose from 15 intervals: 1,2,5,10,15,20,30 seconds and 1,2,5,10,15,20,30 and 60 minutes.

3. Move the arrow to [Programmed] after setting the conditions.

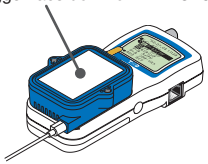


4. Set the recording start time and move the arrow to [REC START].

5. Connect the data logger to the RTR-57C and press the operation dial to have the settings transmitted.

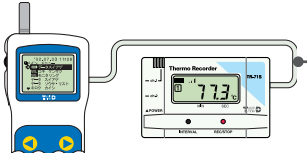
〔For RTR-51/52/53, RVR-52 and TR-51A/52〕

Place logger face down on RTR-57C



● If light enters during communication, an error will occur. Please make sure to place the unit within the ridges for an exact fit.

〔For TR-71S/72S〕



Connect using the included communication cable (TR-3C10)

6. Once transmission has been completed, a message will appear on the display telling you communication was completed successfully. By pressing the operation dial you can go back to the Recording Settings Menu Display.

The Remote Unit(s) will be put on Record Standby.

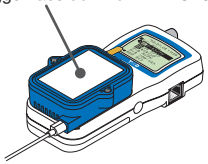
Cable Communication: Download Recorded Data

Download recorded data by connecting the data logger to the RTR-57C.

1. Connect the data logger to the RTR-57C.

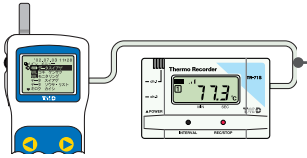
〔For RTR-51/52/53, RVR-52 and TR-51A/52〕

Place logger face down on RTR-57C



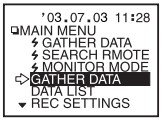
● If light enters during communication, an error will occur. Please make sure to place the unit within the ridges for an exact fit.

〔For TR-71S/72S〕

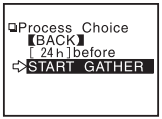


Connect using the included communication cable (TR-3C10)

2. In the Main Menu, open [GATHER DATA] and downloading will start.



● With RTR-51/52/53 and RVR-52 you can select to download data from any number of hours or days before now.

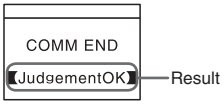


・You can select from 1 ～ 47 hours (in 1 hour units) / 2 ～ 300 days (Less than 100 days in units of 1 day, More than 100 days in units of 5 days) / or ALL DATA.
・If you specify a period of data that is earlier than the period of the data saved in the RTR-51/52/53・RVR-52 Unit, all saved data will be downloaded.

3. When the downloading is completed, a message will be displayed.

By pressing the operation dial, the display will change to that of a graph.

● If you have set the judgment [ON] in [Set ↑ ↓ Limits] before downloading, the result will be displayed when the downloading is completed.



◆ If the amount of main unit memory is low, the downloading of recorded data may be impossible.

When you check the amount of the memory to confirm whether the data you wish to download can be saved in the RTR-57C, and the data cannot be saved, the message [Memory Full] will be displayed and the downloading will be canceled.

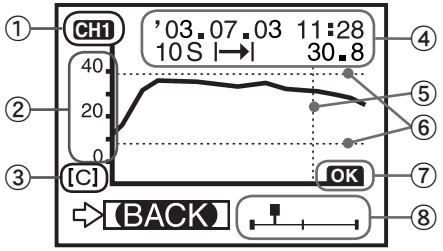
Carry out any new download only after having downloaded and saved the recorded data you wish to save into your computer and having deleted the data from the RTR-57C main unit to make space.
See Page 51-52 for details about deleting data.

● The memory capacity is about 16 units of RTR-51 at full data (16,000 readings) capacity or about 256,000 readings.The maximum number of times you can download recorded data before clearing the memory is 250; this holds true even if there remains empty memory.

● See Page 54 for details about checking the memory.

Graph Display

In this display you can view in graph form the downloaded temperature, humidity, voltage, and pulse data.
A graph is displayed for each channel of data and can be scrolled left and right with the operation dial or by the buttons on the main unit.



※⑥・⑦ are displayed when [Set ↑ ↓ Limits] has been set as ON.

① Displayed Channel

If there is recorded data in two channels, by holding in the operation dial for more than 1.5 seconds the channel will change.

② Scale

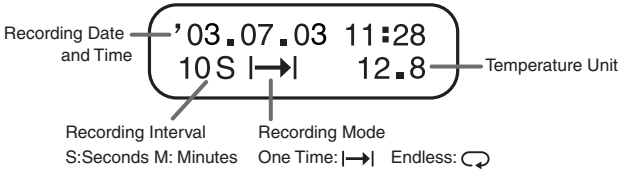
If you want to set the temperature display unit for Fahrenheit (°F), open [SET FUNCTIONS]-[Temp Unit C/F].

③ Vertical Axis Unit

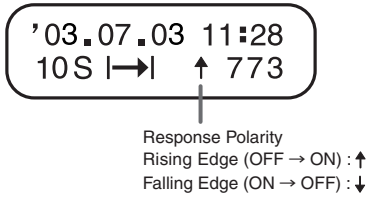
[C] : Celsius, [F] : Fahrenheit, [%] : Humidity, [V] : Voltage, [P] : Pulse

④ Data Information

Displays the measurement information of the cursor bar position.



【For Pulse Data】



⑤ Cursor Bar (Fixed Display)

Cursor position is displayed and measurement information is displayed at the top of the LCD display.

⑥ Upper and Lower Judge Range

When [↑ ↓ Judge] is ON, the range is displayed.

⑦ Upper and Lower Limit Judging Result

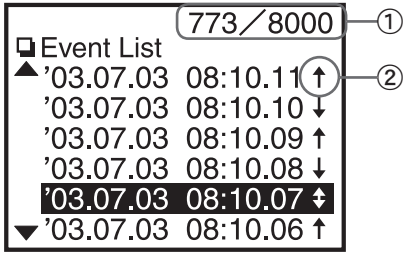
When [↑ ↓ Judge] is ON, the result is displayed.

⑧ Cursor

Shows which part of entire data is presently displayed in graph.
The display can be scrolled with the operation dial or the buttons on the main unit.

Event List Display

You can view the downloaded RVR-52 recorded event data on the RTR-57C in an event data list. With the operation dial or main unit buttons you can scroll up and down the data.



① Recorded Data Reading

Shows the reading number of the data at the cursor position.

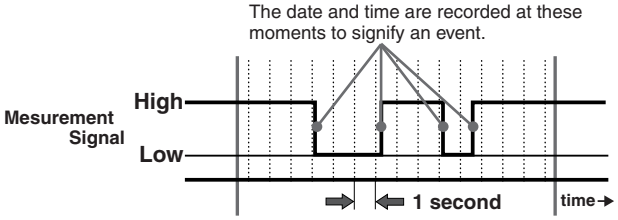
② Arrows

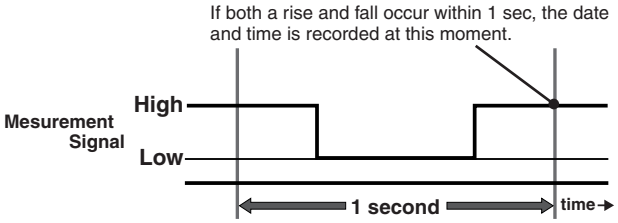
↑ : Rising Edge Data

↓ : Falling Edge Data

↕ : Both Rising and Falling within 1 second

◆ Measurements are taken every second and events are recorded if any changes have occured.




If both a rise and fall occur within 1 sec, the date and time is recorded at this moment.
Mesurement Signal
High
Low
1 second
time

Checking Upper and Lower Limits

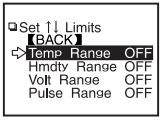
By setting upper and lower limits you can check data as it is downloaded to see if all measurements fall within the limit range and have the results displayed.

NOTE:
Upper and lower limit settings that were set by computer when setting up the recording start time for the Remote Unit will take precedence over other limit settings.

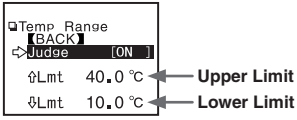
◆ Setting the Upper and Lower Limit Range

1. In the Main Menu, open [SET FUNCTIONS]-[Set ↑ ↓ Limits] .

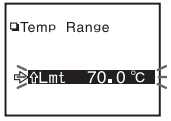
2. Move the arrow to the item you wish to make settings for and open.



3. By clicking [Judgment OFF], it will change to [ON] .



4. By moving the arrow to the upper or lower limit and clicking, it will allow you to make changes. By turning the operation dial, you can make changes to the value; click to activate the new setting.



- By holding down the ◀ · ▶ buttons on the main unit you can make rapid changes to the values. Pressing the ◀ button will make the value lower. Pressing the ▶ button will make the value higher.

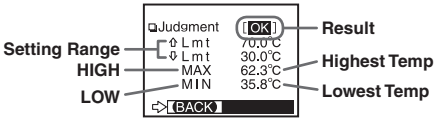
5. When settings are completed, click on [Back] to activate and finish.

※ Settings can also be made via the computer. For details see the [Help] Menu in the software 『T&D Recorder for Windows®』 or the User's Manual that accompanies it.

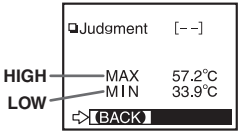
◆ Viewing the Results of Saved Data

1. In the Main Menu, open [DATA LIST] and select the data you wish to check.

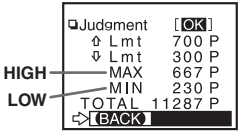
2. By clicking on [Judge], the results will be displayed.



- If no upper and lower limits have been set before downloading, the result will appear as [--] and only the high and low values will appear.



- If the data is pulse data, the total number of pulse readings will appear.



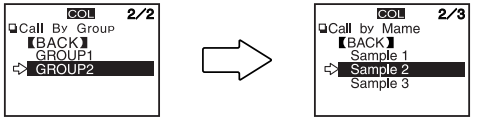
Remote Unit Conditions Display

You can check selected Remote Unit info (Recording Conditions, Current Measurements, and Battery Life, etc.)

※ Before selecting a Remote Unit you can run a search to find all Remote Units with which communication is possible.Those units with which communication is possible will appear with a ϟ mark next to them. (See p.45 for details)

1. In the Main Menu, open [ϟGather Data] .

2. Select the Remote Unit you wish to view.

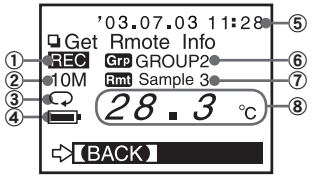


① Select the group in which the unit is registered.

② Select the unit you wish to view.

3. Click [ϟGet Rmote Info] .

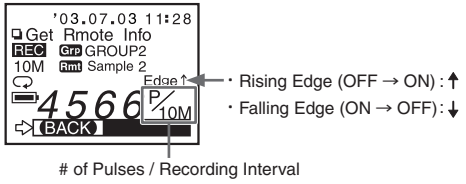
4. Once communication has been completed, the Remote Unit info will be displayed.



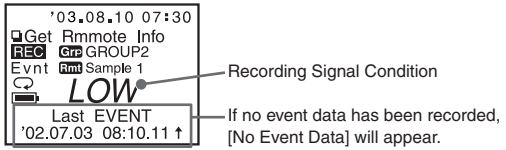
① Recording Status: REC…Recording
STP…Stopped
② Recording Interval:10 min
③ Recording Mode: |→| …One Time
…Endless
④ Battery Life
⑤ Communication Date and Time
⑥ Group Name
⑦ Remote Unit Name
⑧ Measurement at Time of Communication

【For RVR-52 Pulse Recording】

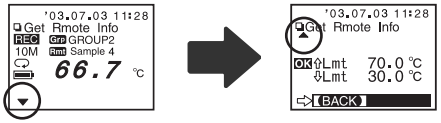
- The total number of pulse readings during the recording interval set when recording settings were made for the Remote Unit will be displayed.



【If RVR-52 has been set for Event Recording Mode】



- If upper and lower limits have been set a ▼ will appear in the lower left corner of the display. By turning the operation dial you can view the limit settings and the judgment results.



Searching for Remote Units

A ϟ mark will appear next to all Remote Unit Names with which communication is possible. This function can be useful when selecting Remote Units for downloading data or starting recording.

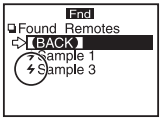
1. In the Main Menu, open [ϟSEARCH RMOTE].

2. Select the search range from ([All Groups] or [Specify Group]) and click to start the search.

- By selecting [All Groups], the search will be for Remote Units in all groups registered in the RTR-57C unit.
- By selecting [Specify Group], the search will be for Remote Units in the specified group.

3. After the search has been completed, a list will appear showing only the Remote Units with which communication is possible.

- A ϟ mark will appear next to the Remote Unit names with which communication is possible.



- The ϟ mark will continue to appear next to Remote Units with which communication has become impossible until a new search is conducted.
- A search of 1 group will take about 20 seconds to complete. (The search time depends on the number of Remote Units registered in the group.)
- By selecting a Remote Unit with which communication is possible and clicking on it, you can either download data or get info about that unit.

【Searching for Remote Units that have been additionally registered in another RTR-57C Unit】

During step 2 at left, by holding in the operation dial, you can search for Remote Units that have been additionally registered to the same group name in another RTR-57C unit. Found Remote units will automatically appear with a Remote name as shown below.

Sr073

Remote Unit number at the time of registration

Monitoring

The RTR-57C can be set to patrol and monitor RTR-51/52/53 or RVR-52 groups and display in order the current readings for view.

1. In the Main Menu, open [⚡MONITOR MODE].

2. Select the monitoring range.

[All Groups] :

Remote Units in all groups registered to the RTR-57C will be contacted via wireless communication, and current measurement readings for those units with which communication is possible will be displayed consecutively every 2 seconds. This can be done for up to 120 units; the 121st unit's reading cannot be displayed.

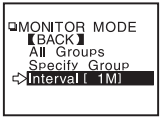
[Specify Group] :

All Remote Units in the selected groups will be contacted via wireless communication, and current measurement readings for those units will be displayed consecutively every 2 seconds.
For those units with which communication is impossible the measurement will be displayed as [----].

3. Select and set the Monitoring Interval

[Interval] :

The monitoring interval is the amount of time between the starting of wireless communication to gather current Remote Unit readings. Selections can be made from between 1 min and 60 minutes (in 1 minute units).



NOTE:

- The amount of communication time depends on the number of registered groups and remote units. Please note that if the monitoring interval is set for less time than communication takes to complete a round of monitoring, the system will automatically extend the interval to allow for the necessary amount of communication time.

NOTE:

- The shorter the monitoring interval the sooner batteries will loose their power.
- **〈Communication Time for [All Groups]〉**
  - If there are 64 Remote Units registered to the group (24 seconds per group x Number of groups)
  - If there are 250 Remote Units registered to the group (54 seconds per group x Number of groups)
    Moreover, the display time for each unit is about 2 seconds.
- **〈Communication Time for [Specify Groups]〉**

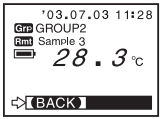
The communication time will depend on the number of registered remote units. For 250 units registered to 1 group the time will be 54 seconds plus a display time for each unit of 2 seconds.

4. By selecting the monitoring range and clicking, the monitoring search will begin.

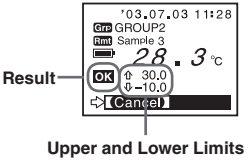
- If using [Specify Group], by specifying the group and clicking, the monitoring search will begin.

5. After the search has been completed, the current measurement readings for those remotes registered in the group(s) will be consecutively displayed.

- For RTR-53, the display will show in the order of temp / humidity.
- If the buzzer has been set to ON and a result is NG, a beeping sound will go off.



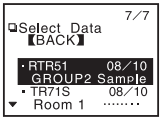
【If the upper and lower limit settings are activated.】



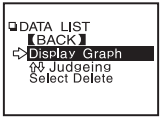
Displaying Recorded Data in Graph

1. In the Main Menu, open [DATA LIST] or press the [List] button on the main unit to view the data list.

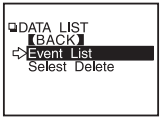
2. Select the data you wish to view from the data selection display.



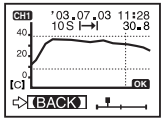
3. Click [Display Graph]



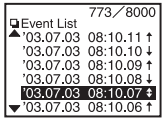
● In the case of event list data, click [Event List]



3. The graph or event list will appear.

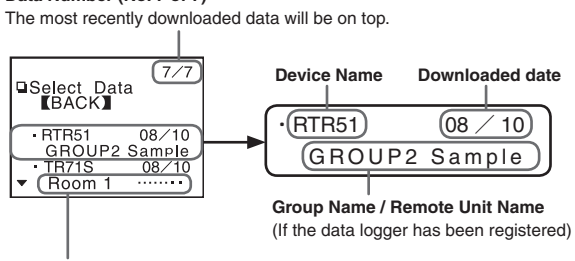


《Graph Display》



《Event List Display》

【Viewing a data list】



● Unregistered data loggers will appear by channel name.

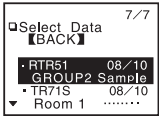
● If a channel name shows [……].
This means that when the recording conditions were set via direct cable connection between the data logger and the computer the channel name was entered using two byte code

● Only the first 6 letters of group and remote names will be displayed.

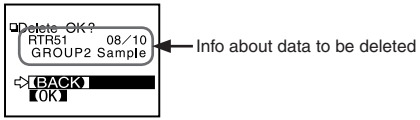
Deleting Data

◆ Deleting Selected Data

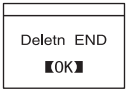
1. In the Main Menu, open [Data List] or press the [List] button on the main unit. Select the data you wish to delete from the list and click.



2. By clicking [Select Delete], a permission message will appear asking if it is [OK] to delete. If yes, move arrow to and click [OK] .



3. When completed, a message will appear. Press the operation dial to finish the deletion process.

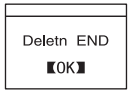


◆ Deleting All Data

1. In the Main Menu, open [Set Functions] and [Clear MEMORY] .

2. A message asking for permission will appear, if OK, move arrow to and click [OK] .

3. When completed, a message will appear. Press the operation dial to finish the deletion process.



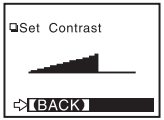
- Recording Conditions and other settings will not be deleted. Recording conditions can be returned to the original factory settings by going to [REC SETTINGS] – [Initialize] .
- Data deletion can also be carried out via the software and your computer. For details, see the Help menu in 『T&D Recorder for Windows®』 or the User's Manual that accompanies it.

Adjusting the LCD

◆ Adjusting Contrast

1.In the Main Menu, open [SET FUNCTIONS] and [Set Contrast]

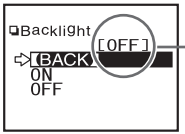
- Move the operation dial up to make the display darker and down to make it lighter.



2.After completing the setting, press the dial to finish.

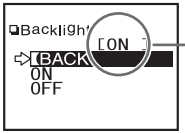
◆ Using the Backlight

1.In the Main Menu, open [SET FUNCTIONS] and [Backlight] .



The present setting will be displayed.

2.By moving the arrow to [ON] and pressing the dial, the setting will be completed.

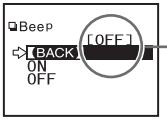


Upon completion the new present setting will be displayed.

3.Move the arrow to and click [BACK] to finish.

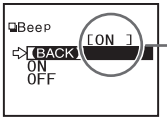
Muting the Operations Buzzer

1.In the Main Menu, open [SET FUNCTIONS] and [Beep] .



The present setting will be displayed.

2.By moving the arrow to [OFF] and pressing the dial, the setting will be completed.

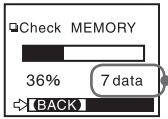


Upon completion the new present setting will be displayed.

3.Move the arrow to and click [BACK] to finish.

Checking Memory

1.In the Main Menu, open [SET FUNCTIONS] and [Check MEMORY] .



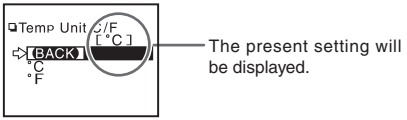
Number of Saved Readings

2.By pressing the operation dial you can return to the SET FUNCTIONS Display.

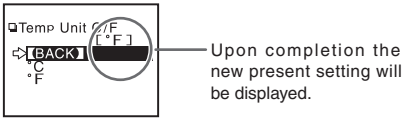
Changing Unit of Temperature

You can change the temp unit (℃ or ˚F) displayed on the RTR-57C main unit.

1.In the Main Menu, open [SET FUNCTIONS] and [Temp Unit]



2.By moving the arrow to [˚F] and pressing the dial, the setting will be completed.



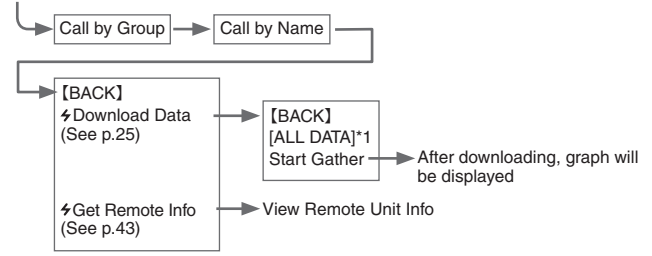
3.Move the arrow to and click [BACK] to finish.

◆ You can make or change Temperature Unit display settings for each data logger in the Recording Start Settings display in the supplied software. For details, see the Help menu in 『T&D Recorder for Windows®』 or the User's Manual that accompanies it.

··· Menus at a Glance ···

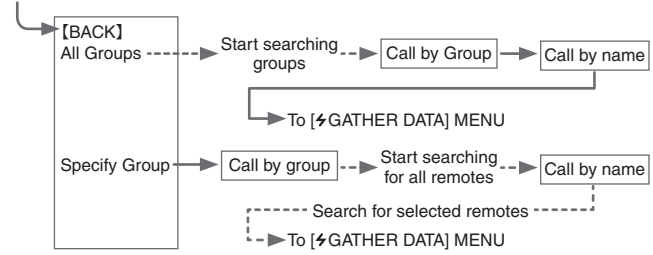
For details about operations please see the relevant pages.

ϟGATHER DATA

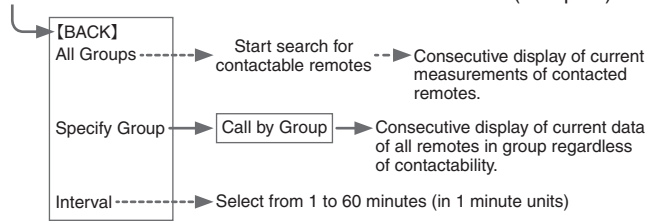


*1 You can select to download all data from any number of hours or days before now.

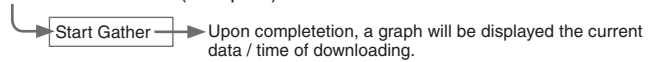
ϟSEARCH REMOTES (See p.45)



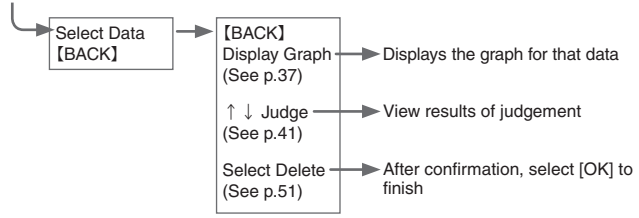
ϟMONITOR MODE…View Current Measurements (See p.47)


【BACK】
All Groups
Start search for contactable remotes
Consecutive display of current measurements of contacted remotes.
Specify Group
Call by Group
Consecutive display of current data of all remotes in group regardless of contactability.
Interval
Select from 1 to 60 minutes (in 1 minute units)

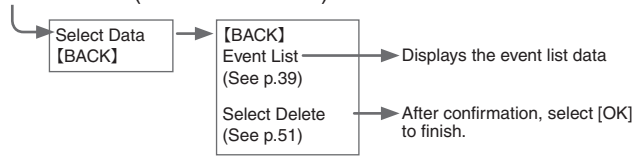
GATHER DATA (See p.34)



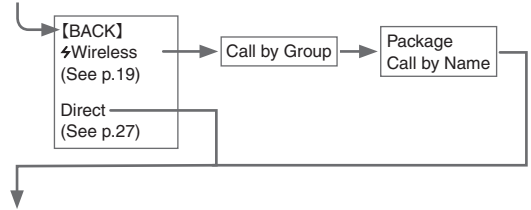
DATA LIST



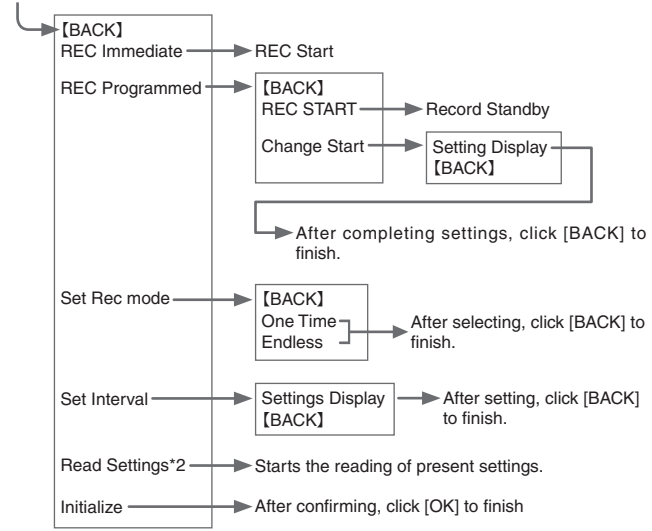
DATA LIST (For an Event List)



REC SETTINGS

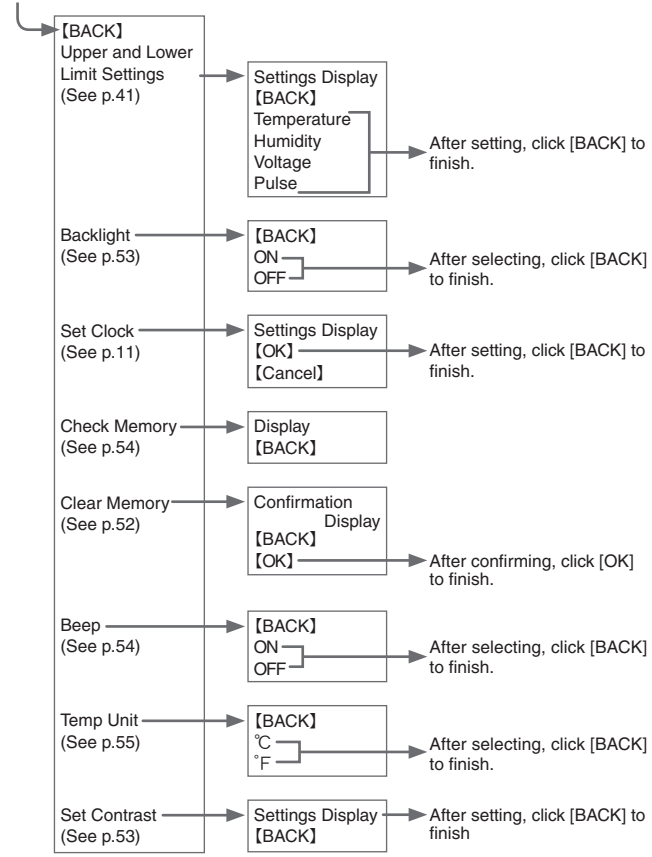


REC SETTINGS



*2 [Read Settings] is not displayed if you have selected [ϟWireless] and [Package].

SET FUNCTIONS



Specifications for RTR-57C Data Collector

Compatible Models	RTR-51・RTR-52・RTR-53・RVR-52・TR-51A・TR-52・TR-71S・TR-72S
Recording Capacity	16 units at full data 16,000 readings × 16 = 256,000 readings Can hold up to 250 downloading sessions
Functions	Downloading Data (possible to display results of upper and lower limit check after downloading)・Display Saved Data Graphs・Display Highest and Lowest Temperature・Set Recording Start for Remote Data Loggers・Delete Stored Data (one reading・all readings)・Monitor Current Temperature・Search for Remote Units
LCD Display	Operation Menu・Graph Display・Low Battery Life Warning・Calendar and Clock・Contrast Adjustment・Backlight
Power	TTwo AAA Alkaline Batteries (LR03)・Can use rechargeable AAA Ni-Cd or Ni-MH 1.2V batteries・Special AC Adaptor (AD-0604)
Battery Life	100 hrs under Continuous Operation Auto Power Off Function (Turns unit off after 3 minutes of non-use)
Data Backup	Approx. 1 year with switch off Data erased if all battery power is lost
Wireless Method	ETSI EN300-220
Transmission Distance	Up to 100 meters (May vary with conditions)
Interface Communication Speed	Special Short Wave Radio Type: approx. 2,000bps / min (with data logger) Modular Jack: Serial Communication(RS-232C) 19,200bps (with computer) 9,600bps (with data logger) Optical Communication: 2400bps (with data logger)
Interface Communication Time	Data from RTR-57C to Computer: One Full Logger's Data ~ 25 sec. Data from RTR-51 / 52 / 53 / RVR-52 to RTR-57C via wireless: One Full Data~420sec. Data from TR-7 Series to RTR-57C via cable: One Full Data ~ 50sec. Data from TR-5 Series to RTR-57C via optical: One Full Data ~ 160sec.
Dimensions	H 125mm x W 58mm x D 25.5mm (excluding protruding part) Antenna Length: 20mm-105mm (fully extended)
Weight	Approx. 125g. (Including 2 AAA Alkaline batteries)
Operating Conditions	Temperature: 0 to 50℃ Humidity: Less than 90% RH (Without dew condensation)

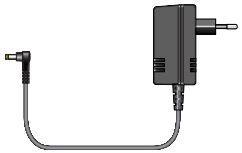
Accessories Included	Computer Communication Cable (RS-232C:D-Sub9 pin:1.5m) x 1 Data Logger Communication Cable (TR-3C10:1m) x 1 AAA Alkaline Batteries (LR03) x 2 User's Manual and Warranty x 1 Software (T&D Recorder for Windows) x 1

Options

◆ AC Adaptor

AD-0604

Cable length : 1.85m
Input: 230V ／ 50Hz
Output: DC6V ／ 50mA

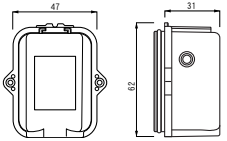


For RTR-5/RVR-5

◆ External Power Adaptor

RTR-05A1

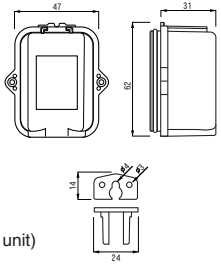
Voltage Input: DC6V (Nominal)
Back-up Power: Ni-MH Battery
(In case of power loss)
Back-up Time: 4 days (*1)
Charging Method: Trickle Charge
Operating
Temperature: 0 to 60℃
Waterproof
Capability: None
Weight: about 37g (without AC adaptor)
Kit Contents: AC Adaptor (AD-0604) x 1
Attachment hook x 1
Rubber Packing x 1 (for back of main unit)
Rubber Packing (small) x 1
(for AC adaptor jack)
Silica Gel Pack (drying agent) x 1
Double-sided Adhesive Tape x 1
(for fastening silica gel)
Screws x 2
(extras for fastening back of main unit)



◆ Large Capacity Battery Pack

RTR-05B1

Power: Lithium Battery x 1 (LS26500)
Battery Life: about 2 years and 6 months (*1)
(Monitoring at 1 minute interval
= about 20 months)
Waterproof
Capability: Splash proof
Operating
Temperature: −40 to 80℃ (*2)
Weight: about 75g (including lithium battery)
Kit Contents: Lithium Battery x 1 (LS26500)
Attachment hook x 1
Rubber Packing x 1 (for back of main unit)
Silica Gel Pack (drying agent) x 1
Double-sided Adhesive Tape x 1
(for fastening silica gel)
Screws x 2 (extras for fastening back of main unit)



◆ Battery Set for Large Capacity Battery Pack

RTR-05B2

Kit Contents: Lithium Battery x 1 (LS26500)
Rubber Packing x 1 (for back of main unit)
Silica Gel Pack (drying agent) x 1
Double-sided Adhesive Tape x 1 (for fastening silica gel)
Screws x 2 (extras for fastening back of main unit)

NOTE:

(*1) Battery Life varies depending on measuring environment, recording interval, transmission frequency, and ambient temperature. The battery life estimated here is calculated using a new battery under normal operating conditions and is no way should be understood as a guarantee of battery life.

(*2) Operating temperature depends on the specifications for the data logger being used.

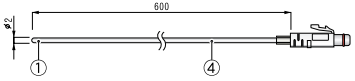
Optional Sensors

◆ Temperatue Sensors (For TR-52/RTR-52)

unit : millimeters

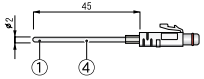
TR-5106 Teflon-Shielded Sensor

Cable Length: 45mm
Thermal-Constant Time :
In the air : Approx. 15 Sec.
In agitated water : Approx 2 Sec



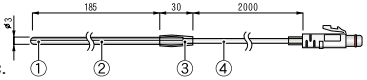
TR-5101 Teflon-Shielded Sensor

Cable Length: 0.6m
Thermal-Constant Time :
In the air : Approx 15 Sec.
In agitated water: Approx 2 Sec.



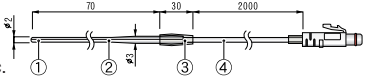
TR-5220 Stainless Protection Sensor

Cable Length: 2.0m
Thermal-Constant Time :
In the air:Approx 36 Sec.
In agitated water: Approx 7 Sec.



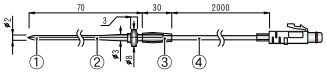
TR-5320 Stainless Protection Sensor

Cable Length: 2.0m
Thermal-Constant Time :
In the air: Approx 12 Sec.
In agitated water: Approx 2 Sec.



TR-5420 Stainless Protection Sensor

Cable Length : 2.0m
Thermal-Constant Time:
In the air:Approx 12 Sec.
In agitated water: Approx 2 Sec.



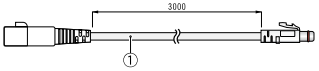
Materials: ① Thermistor ② Stainless pipe(SUS316) ③ Teflon Compaction Tube
④ Teflon Resin (FEP)-Shielded

Possible Measurement Range: –60 to 155℃ Sensor Temperature Durability: –70 to 180℃
Water Resistance: Splash Proof (Sensor and Cable)
Measurement Accuracy: Average ±0.3℃ (−20 to 80℃)・Average ±0.5℃ (−40 to −20℃ /80 to 110℃)
・Average ±1.0℃ (−60 to −40℃ /110 to 155℃)

◆ Sensor Extension Cable (Temp Sensor Only) unit : millimeters

TR-2C30

Cable length: 3.0m
Splash Resistant



Materials: ① Vinyl Coated Electrical Wire

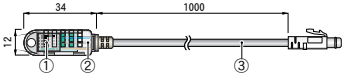
NOTE:
Only one cable per sensor. When using the extension cable there will be a +0.3℃ at normal temperature and at −50℃ a gap of +0.5℃ may occur.

◆ Temp / Humidity Sensors (For RTR-53)

unit : millimeters

TR-3310 Temp / Humidity Sensors

Possible temperature
measurement range : 0 to 55℃
Possible humidity
measurement range : 10 to 95% RH
Sensor temperatur
resistance : −10 to 60℃
Temp measurement
accuracy : average ± 0.3℃
humidity measurement
accuracy : ± 5% RH
(At 25℃ 50% RH)
Service life : 1 year (under normal operational conditions)
Operational conditions : Without dew condensation, water leakage or effect from corrosive gas or organic solvents.
Cable length : 1m



Materials: ① Temperture/humidity sensor
② Polypropylene resin
③ Vinyl Coated Electrical Wire

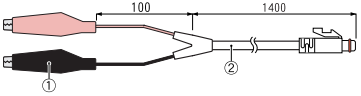
Input Cables (Optional)

◆ Input Cable (for RVR-52)

unit:millimeters

RVR-7101 Input Cable

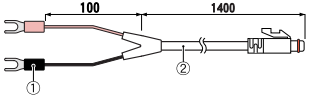
Cable Length: 1.5 m



Materials: ① Clip
② Vinyl Coated Electrical Wire

RVR-7102 Input Cable

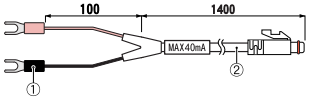
Cable Length: 1.5 m



Materials: ① M3.5 Crimp Terminal
② Vinyl Coated Electrical Wire

RVR-7103 4-20mA Probe

Maximum Current Input:
MAX40mA
Interior Resistance: 100 Ω
Output: 2V at 20mA / 0.4V at 4mA
Conversion Accuracy: 0.5%
Cable Length: 1.5 m



Materials: ① M3.5 Crimp Terminal
② Vinyl Coated Electrical Wire

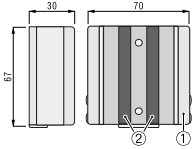
Options for TR-5/RTR-5/RVR-5

◆ Wall Attachment

unit : millimeters

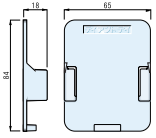
TR-05K1

Screws x 2



Materials: ① Aluminum ② Neoprene

TR-05K2

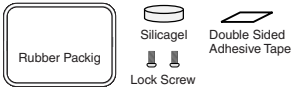


Materials: ABS Resin

◆ Maintenance Set

TR-00P1

Contents: Rubber packing x 1
Silica gel x 1
Double-sided Adhesive tape x 1
Lock Screw x 2



■ **For product information or questions contact us at:**

T&D CORPORATION

5652-169 Sasaga Matsumoto, Nagano Japan 399-0033
Tel: +81-263-27-2131
Fax: +81-263-26-4281
E-mail: overseas@tandd.co.jp

Office Hours:Monday to Friday 9:00-12:00/13:00-17:00
(GMT +9:00 Tokyo Time)

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